PHENIX

TECHNICAL SUPPORT 2010

PHENIX WEEKLY PLANNING

10/21/2010

Don Lynch

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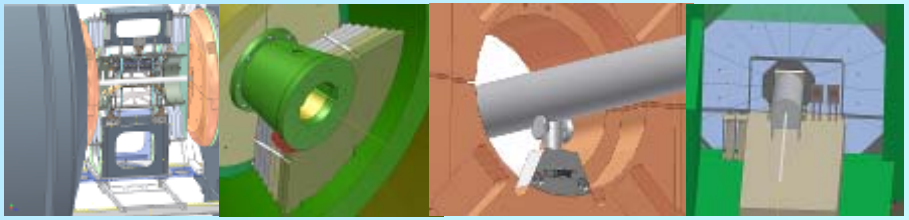
TECHNICAL SUPPORT 2010

2010 Shutdown (Overview)

	Start Date	End Date
Design, Eng'g, fabrication, procurement and site preparation tasks in support of shutdown tasks	In Progress	12/1
Shutdown Startup Tasks	Done	Done
Gas system maintenance, repair and upgrade	In progress	12/1
PHENIX Infrastructure maintenance, repair and upgrade	In Progress	12/1
Remove RPC Prototypes	Done	Done
Remove HBD	Done	Done
Remove RXNP	Done	Done
Remove/Reinstall BBC	In Progress	10/29
Remove Re-install MPC	In Progress	10/29
RPC3N & MuTrigger unfinished business	In Progress	11/1
Remove current BP, install new BP	Done	Done
DC/PC maintenance and repair (mid summer)	Done	Done
Install RPC3S (including Absorbers)	In Progress	12/1
MuTr maintenance, repair and upgrade	In Progress	11/1
Install VTX	10/25	12/1



Post Run 10 Tasks

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Task	Start Date	End Date
Send mass flowmeters out for recalibration (DC/PC, MuID, TOF.W)	In Progress	11/30
AH Crane 110 switch for lockout	In Progress	11/30

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This Week:

Continue Assembly of VTX subassemblies & Continue Survey

Continue RPC3S services.

RPC3N unfinished business

Future upgrades support

Finish reinstalling new BP and moving major carriages back to run beamline alignment

Begin Bakeout and NEG activation of new BP

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Next Week

Finish Assembly of VTX subassemblies & Survey

Continue RPC3S services.

RPC3N unfinished business

Finish Bakeout and NEG activation of new BP and Leak check

Continue restoring services to CM and MMS

Continue VTX Installation Prep

Future upgrades support

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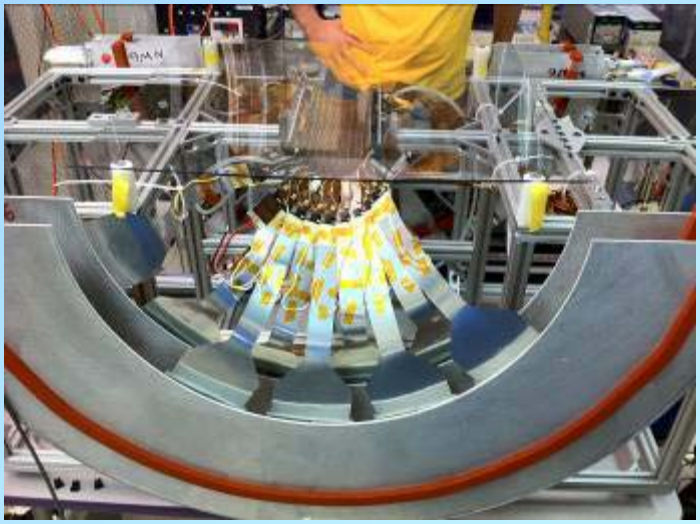

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VTX Final Assembly

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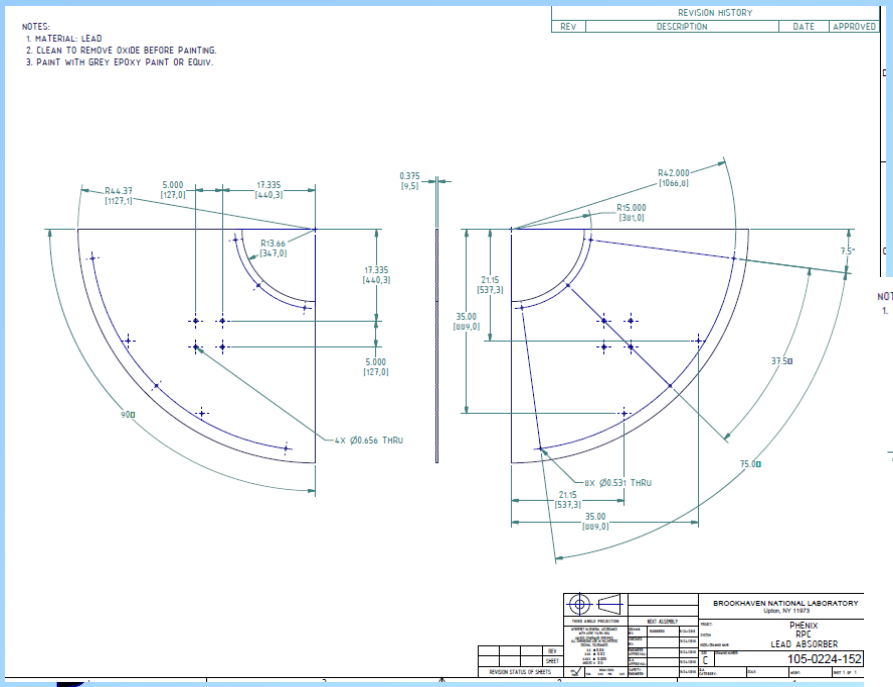
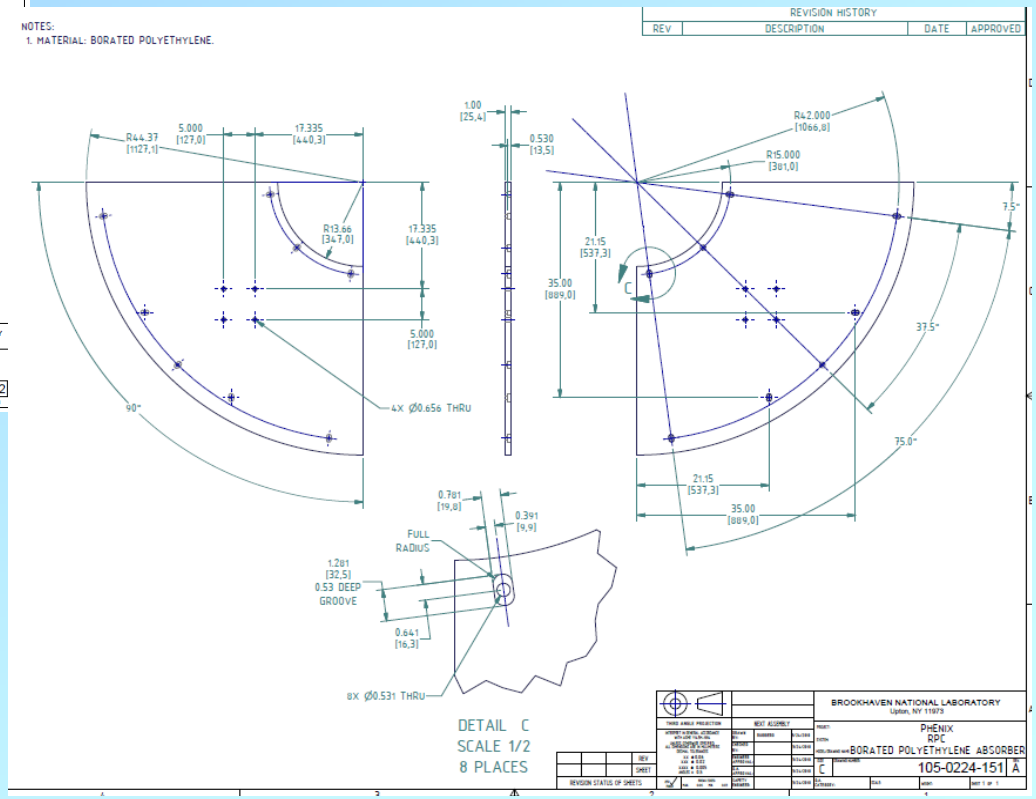

REVISION HISTORY
REV
DESCRIPTION
DATE
APPROVED
NOTES:
1. MATERIAL: LEAD
2. CLEAN TO REMOVE OXIDE BEFORE PAINTING.
3. PAINT WITH GREY EPOXY PAINT OR EQUIV.
R44.37 [1127,1]
5.000 [127,0]
17.335 [440,3]
R13.66 [347,0]
0.375 [9,5]
R42.000 [1066,8]
R15.000 [381,0]
7.5°
21.15 [537,3]
35.00 [889,0]
37.5°
75.0°
90°
4X Ø0.656 THRU
8X Ø0.531 THRU
BROOKHAVEN NATIONAL LABORATORY
Upton, NY 11973
PHENIX
RPC
LEAD ABSORBER
105-0224-152

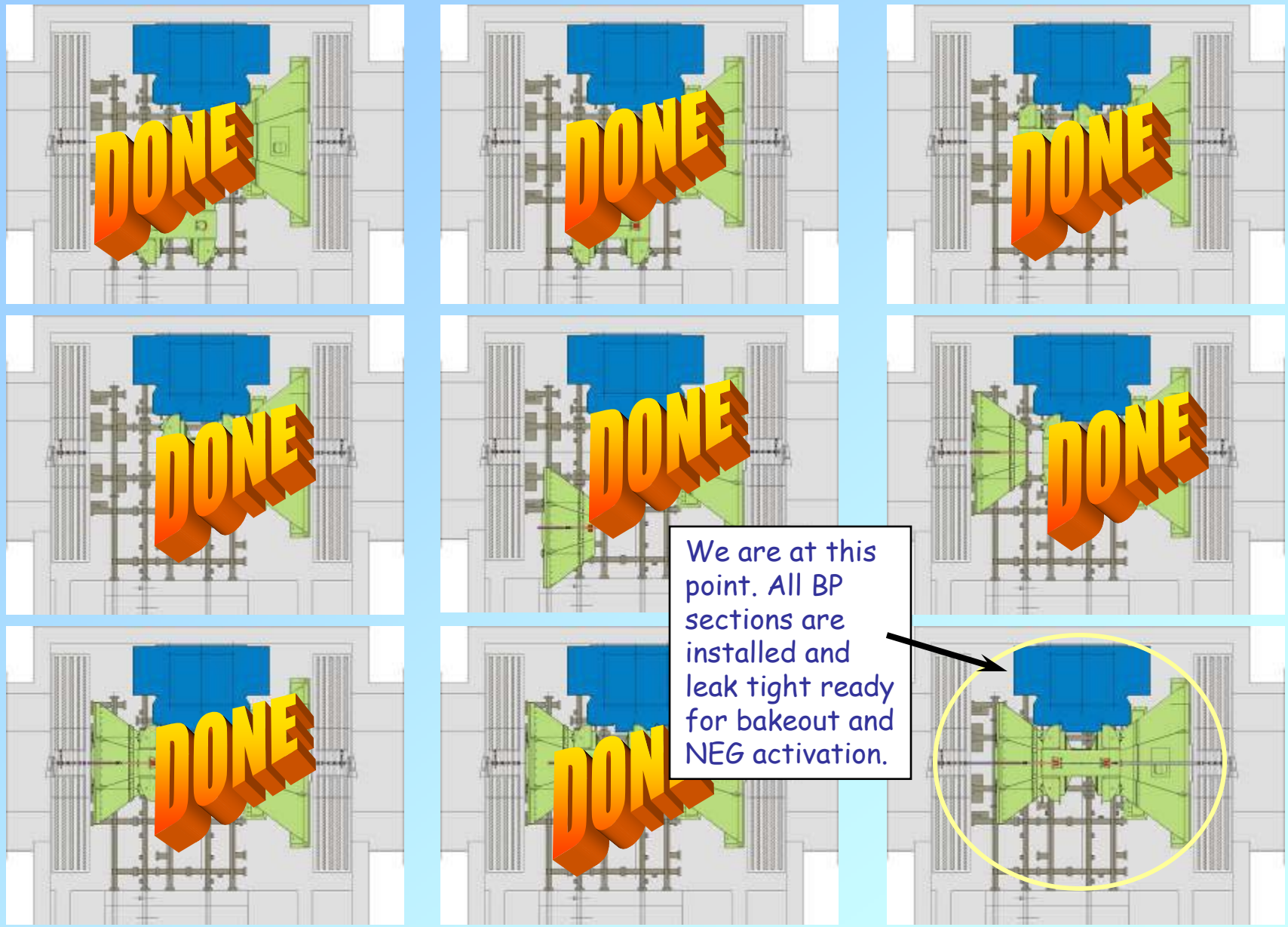

REVISION HISTORY
REV
DESCRIPTION
DATE
APPROVED
NOTES:
1. MATERIAL: BORATED POLYETHYLENE.
R44.37 [1127,1]
5.000 [127,0]
17.335 [440,3]
R13.66 [347,0]
1.00 [25,4]
0.530 [13,5]
R42.000 [1066,8]
R15.000 [381,0]
7.5°
21.15 [537,3]
35.00 [889,0]
37.5°
75.0°
5.000 [127,0]
90°
4X Ø0.656 THRU
0.781 [19,8]
0.391 [9,9]
FULL RADIUS
1.281 [32,5]
0.53 DEEP GROOVE
0.641 [16,3]
8X Ø0.531 THRU
DETAIL C
SCALE 1/2
8 PLACES
BROOKHAVEN NATIONAL LABORATORY
Upton, NY 11973
PHENIX
RPC
BORATED POLYETHYLENE ABSORBER
105-0224-151 A

PORT 2010

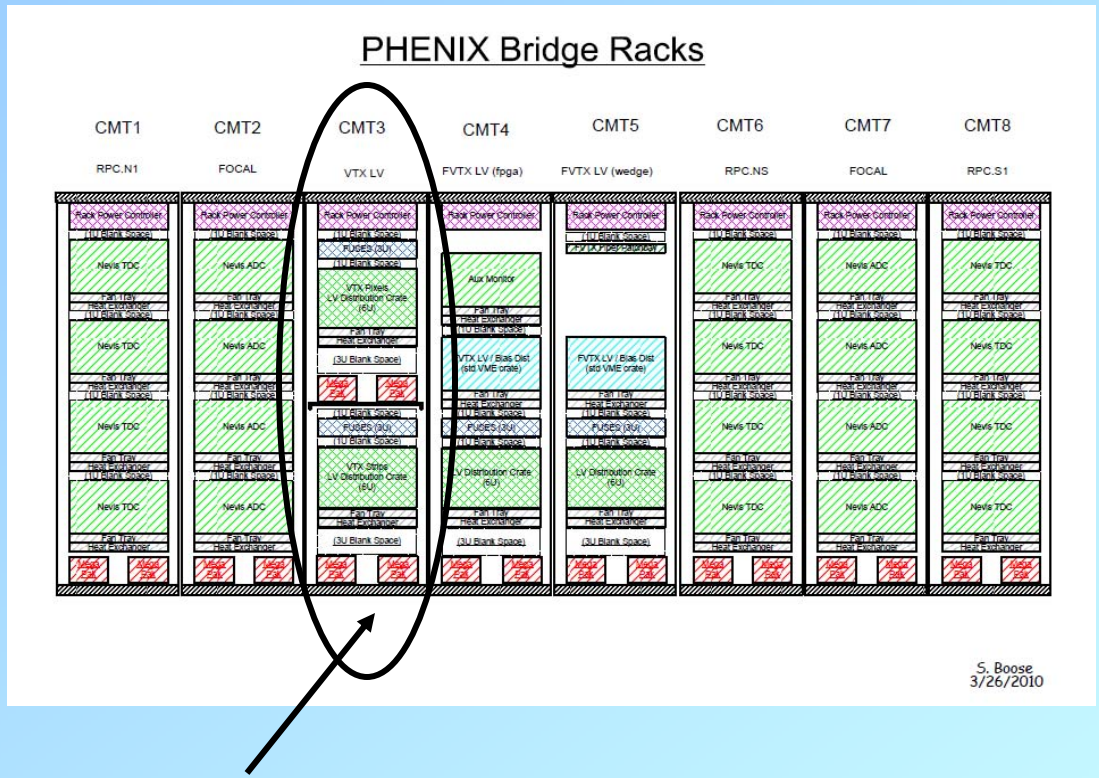
Installation of New Beampipe

PHENIX

TECHNICAL SUPPORT 2010



Bridge Work this shutdown



This rack to be installed this summer

1. Reinstall 2 north sections, reconnect plumbing and cable trays to 2 north sections of bridge
2. Upgrade electric service to support 8 racks
3. Install 1 or 2 racks for VTX/ FVTX/RPC/FoCal electronics

VTX Thermocouples

TECHNICAL SUPPORT 2010

Ready-Made Insulated Thermocouples with Stripped Leads

5-TC Series Starts at $33 5 Pack

Shown actual size.

- Available from Stock in Convenient 5-Packs
- PFA, Kapton®, or Glass Braid Insulation
- 20, 24, 30, 36 and 40 AWG Wires
- 1 and 2 m (40 and 80") Lengths Standard
- NIST Calibration Available
- OEM Quantities Available

"TT" PFA Insulation

"GG" Glass Braid Insulation

Also Available TAP Adhesive Labels!

Thermocouple Adhesive Labels secure wire probes to surfaces. TAP adhesive labels have a thickness of 0.064 mm (0.0025") and can be used at a maximum temperature of 180°C (356°F). They are made of a polymide film with a silicone pressure sensitive adhesive.

Please see page F-10 for additional details and ordering information.

Actual size.

Model TAP, roll of 100 adhesive labels, SLB, shown smaller than actual size.

MOST POPULAR MODELS HIGHLIGHTED!

Fine 40-Gage PFA Wire | KAPTON® Insulation

To Order *(Specify Model Number)*

Model No. ANSI Color Code	AWG Gage	Diameter mm (in)	Insulation	Price, Pack of 5: 1 m (40")	2 m (80")
5TC-GG-(*)-20-(**)	20	0.81 (0.032")	Glass Braid	$39	$49
5TC-GG-(*)-24-(**)	24	0.51 (0.020")	Glass Braid	33	43
5TC-GG-(*)-30-(**)	30	0.25 (0.010")	Glass Braid	33	43
5TC-GG-(*)-36-(**)	36	0.13 (0.005")	Glass Braid	60	80
5TC-TT-(*)-20-(**)	20	0.81 (0.032")	PFA	53	70
5TC-TT-(*)-24-(**)	24	0.51 (0.020")	PFA	33	43
5TC-TT-(*)-30-(**)	30	0.25 (0.010")	PFA	44	64
5TC-TT-(*)-36-(**)	36	0.13 (0.005")	PFA	53	70
5TC-TT-(*)-40-(**)	40	0.08 (0.003")	PFA	60	80
5TC-KK-(*)-20-(**)	20	0.81 (0.032")	Kapton®	71	95
5TC-KK-(*)-24-(**)	24	0.51 (0.020")	Kapton®	55	69
5TC-KK-(*)-30-(**)	30	0.25 (0.010")	Kapton®	85	113

* Insert calibration J, K, T, or E. ** Specify length, insert "36" for 1 m or "72" for 2 m length.

Note: For GG or TT wire, add $5 per additional 300 mm (12") per package of 5. For KK wire, add $8 per additional 300 mm (12") per package of 5.

Ordering Example: 5TC-TT-K-20-36, 5 pack, PFA insulated thermocouple, Type K calibration (CHROMEGA®-ALOMEGA®), 20 AWG, 1 m (40") long, stripped lead termination, $44.

A-21

Thermocouple Alloy and Gold-Plated Copper Contacts for Multipin Connectors

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*

Alloy Type	Coding Color Letter	Pins (Male)	Price pkg of 20	Sockets (Female)	Price pkg of 20
Iron (+)	BLK M	HPC-IR-P	$60	HPC-IR-S	$100
Constantan (–)	YEL N	HPC-CO-P	100	HPC-CO-S	100
Copper (+)	RED C	HPC-CU-P	80	HPC-CU-S	80
CHROMEGA® (+)	WHT P	HPC-CH-P	68	HPC-CH-S	100
ALOMEGA® (–)	GRN R	HPC-AL-P	68	HPC-AL-S	100
*Gold-Plated (Uncompensated)	Color Bands†	HPC-AU-P	15	HPC-AU-S	20

Sealing plugs, model no. MTC-HP, $.50 each.
** For use with non-thermocouple wire in same body.*
Grommets available. Consult Sales Department for price and delivery.
† Pins have red, yellow and brown color bars; sockets have red, blue and black color bars.

G-53

Recommended for Use With Stranded Wire

5-Pin | 12-Pin | 24-Pin | 41-Pin | 55-Pin

Contact cavities are identified with a spiral guide line indicating cavity sequence. The first and last cavities are numbered and every tenth cavity is bracketed.

Style FF

Style MC and FC

Style FC

Style SHL

Multipin Connector Bodies*

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*

Number of Cavities	MC Male Cord	Price	FC Female Cord	Price	FF Female Flanged	Price	Backshell Cable Clamp**	Price
5	MTC-5-MC	$43	MTC-5-FC	$76	MTC-5-FF	$41	MTC-5-SHL	$57
12	MTC-12-MC	46	MTC-12-FC	80	MTC-12-FF	46	MTC-12-SHL	41
24	MTC-24-MC	53	MTC-24-FC	100	MTC-24-FF	60	MTC-24-SHL	53
41	MTC-41-MC	63	MTC-41-FC	110	MTC-41-FF	68	MTC-41-SHL	53
55	MTC-55-MC	79	MTC-55-FC	113	MTC-55-FF	77	MTC-55-SHL	57

* Contacts not included. Order from next page.
** Backshell cable clamps provide effective support for the cable at the male or female connector and prevent twisting and pulling.
Ordering Examples: MTC-55-FC, multipin connector body, $113. MTC-24-FF, female flanged connector, $60.

G-61

VTX Subassembly, Top Assembly, Installation and Integration Prep

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Cooling system installation	11/30/10	

New Beampipe installation

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TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Prealign Be/Alum pipe with transitions attached on new BP supports At MPC north, BBC south and north nosecone	Done	Surveyors & PHENIX Techs
Prepare south 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	Done	PHENIX Techs
Install south 3 to 5 transition, bellows and 1-5/8 to 3" transition in MMS	Done	PHENIX Techs
Move MMS back into IR on beamline	Done	PHENIX Techs
Move CM south, slide Transition ass'y in MMS north and connect to new Be BP	Done	CAD Vac & PHENIX Techs
Move CM and MMS north and install south spool. Leak check. Move MMS South	Done	CAD Vac & PHENIX Techs
Install temporary bakeout supports	Done	PHENIX Techs
Install bakeout blankets and monitoring	Done	CAD Vacuum Techs
Bakeout New BP and activate NEG coating	10/29/2010	CAD Vacuum Techs
Leak check BP	10/29/2010	CAD Vacuum Techs
Re-install MPC's & BBC's including Cables and services	11/10/2010	PHENIX Techs Concurrent
Move CM to run position	11/10/2010	PHENIX Techs
Final alignment of new BP	11/12/2010	PHENIX Techs

VTX Installation, VTX Services and Electronics

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TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Presurvey VTX ½ detectors in Chemistry lab	In Progress	PHENIX TECHS and BNL Survey, 1 week
All VTX detector, support, installation, alignment and survey parts and assemblies complete, ready for installation	10/27/2010	All sources
Install and align VTX rails perpendicular to beam line	10/27/2010	PHENIX Techs
Install and align west half detector module	11/5/2010	PHENIX Techs & Survey
Install and align east half detector module	11/5/2010	PHENIX Techs & Survey
Install mechanical support structures for VTX services and electronics	11/12/2010	PHENIX Techs Concurrent Effort
Install Cable trays	11/12/2010	|
Install racks	11/12/2010	|
Install chiller	11/12/2010	|
Install cables, plumbing	11/12/2010	|
Connect cables and plumbing	11/12/2010	V
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Test, de-bug and commission	12/1/2010	PHENIX Techs

RPC3 South Integration

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Install new cable trays and piping supports	Done	Electrician, PHENIX Techs earlier if possible
Re-install MuID wiring and pipes	In Progress 10/27/10	PHENIX Techs
Install south thermal/vapor barrier	11/15/2010	CAD contractor
Re-install MuID gas rack	Done	PHENIX Techs
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Commissioning and final acceptance tests	11/30/2010	RPC Group
Install RPC3 HV, LV and signal wiring and gas lines	11/30/2010	PHENIX Techs
Install RPC3 South gas distribution rack	11/30/2010	PHENIX Techs
Re-install shielding	11/30/2010	Riggers
Install RPC3 South environmental controls (heaters and thermostats)	11/30/2010	Electrician

Shutdown 2010 Other Work

TECHNICAL SUPPORT 2010

Task support	Due By	NOTES
DC/PC maintenance/repair (after EC is in)	11/22/2010	FEM and wire troubleshooting and repairs, major efforts will require longer shutdown
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
PHENIX Survey Review	11/30/2010	PHENIX Techs & Survey
Procedure Updating	11/30/2010	PHENIX Engineering
Gas Mixing House maintenance & Repair	11/30/2010	Tasks TBD
PHENIX Infrastructure maintenance, repair, upgrade	11/30/2010	TBD
Gas Pad: new gas storage details	11/30/2010	Tasks TBD
Gas Pad services for new dewar support, maintenance and improvements	11/30/2010	TASKS TBD

Shutdown 2010 Other Work (Cont'd)

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TECHNICAL SUPPORT 2010

Task support	Due By	NOTES
AH Flood prevention improvements	11/30/2010	Tasks TBD
IR Bridge Electrical service upgrade	11/30/2010	Support for 4 full racks in 2010, 4 more (8 total) in future, PHENIX Techs & Electrician
RPC Factory Support	11/30/2010	Tasks TBD
Rack Room upgrade	11/30/2010	Includes New EB Switch
PHENIX Design Documentation	11/30/2010	PHENIX Engineering
CM alignment stops	11/30/2010	TBD
Gas System maintenance, repair, upgrade	11/30/2010	Tasks TBD
Other subsystem maintenance, repair/upgrade	11/30/2010	Tasks TBD
Future upgrade support	11/30/2010	RPC1, FVTX, FOCal, other Tasks TBD
Prepare for Run 11: EC platforms fold up in AH, fold down in IR, EC Equipment lift take down in AH, Install in IR, Install shielding wall base and build shielding wall & Install MMS Lampshade	11/30/2010	Normal end of shutdown tasks, typically taking 3-4 weeks: Riggers & Carpenters, CAD Techs
Run 11 Start	12/1/2010	
End of Shutdown Party	~12/3/2010	

2010 Building Maintenance Issues

TECHNICAL SUPPORT 2010

- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall and over door between control room and elect. ass'y room.
- General maintenance for Trailer Offices (in progress)
- Trailer Office Modifications planning in progress (new exterior siding)
- Roof leaks in laser room and IR (southeast corner)
- Flooding in AH/ Driveway heaving [Lake PHENIX]

To be located in front of AC on east side of GMH

Proposed shed addition to Gas Mixing house

P…use/store
l… …for R134A to
k… …up with TOF West & RPC requirements. No flammable gas, standard shed with heat. Barn style doors desirable. Palce on asphalt with no threshold to allow bottle management with pallet lifter.

PHENIX Procedure Review Current Status:

148 Procedures Identified

85 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference purposes)

9 CAD procedures relevant to PHENIX, all a[illegible]d available on the CAD web site

42 P[illegible]

a[illegible]date (1 of these soon needs updating)

11 P[illegible]sed/Draft Procedures (never previously formalized) (3 are ready for review)

Nothing New This Week

Web retrieval of latest procedures now available from PHENIX Internal:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm

VTX Chillers (3) installation proposal: Remove existing platform, stairs and HBD hutch. Replace with larger platform and new stairs. Chillers to be located on platform, Hydraulics to be stowed under platform.

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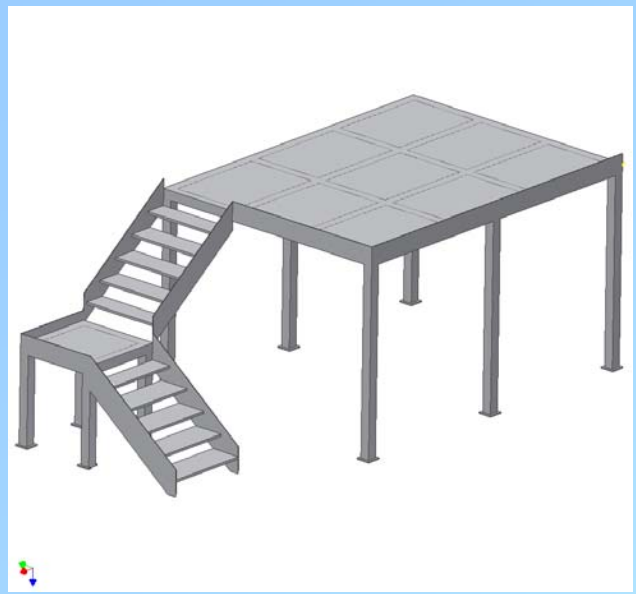
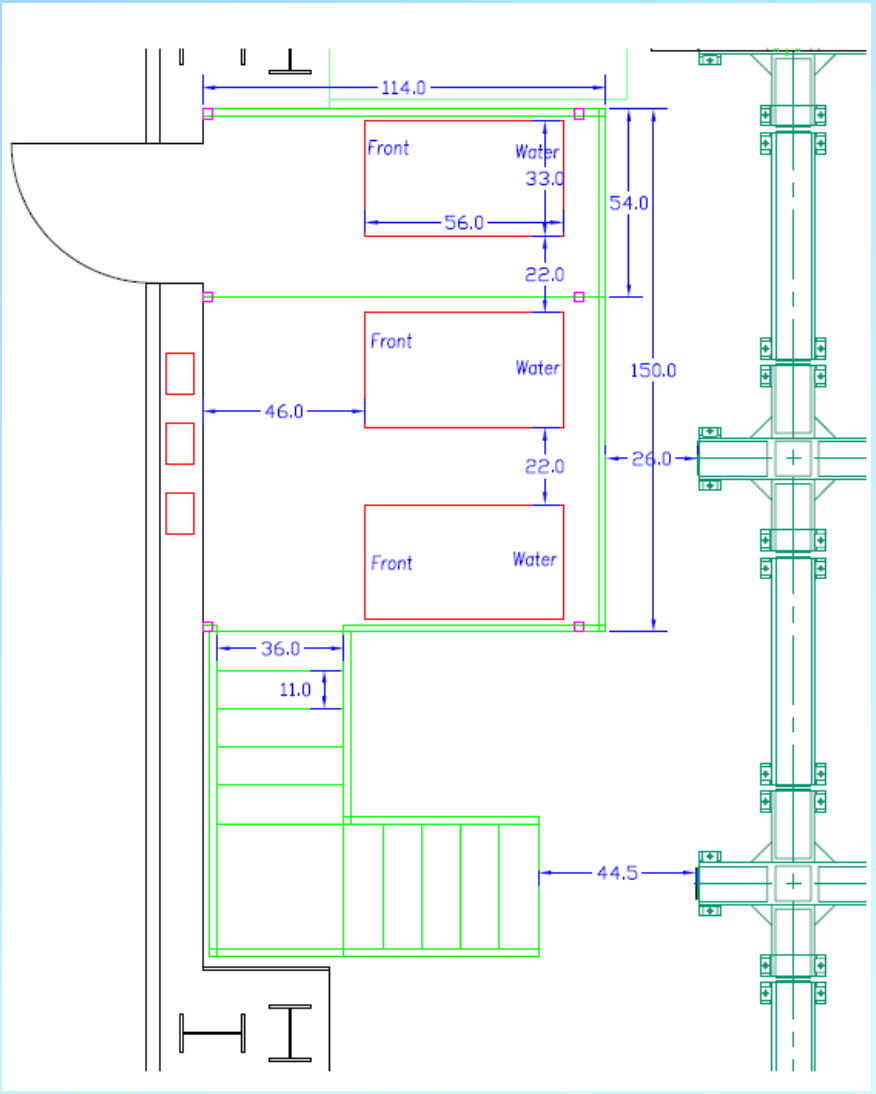
TECHNICAL SUPPORT 2010





Propose to remove existing steps to south AH door with a deck and stairs. 3 chillers to be mounted on top of deck. Piston hydraulic units to be stowed under deck. Deck dimensions approx 9 ft (N-S) by 12 ft (E-W) by 7 ft height to doorway with steps at east end. Platform to support 3000 lb (1000 lb per chiller) fixed load plus 1000 lb (4 person) live load

30 gpm water needed (from exp. H_20). 480 V 3 phase 30 amp service needed. (available from hydraulic piston service panel)

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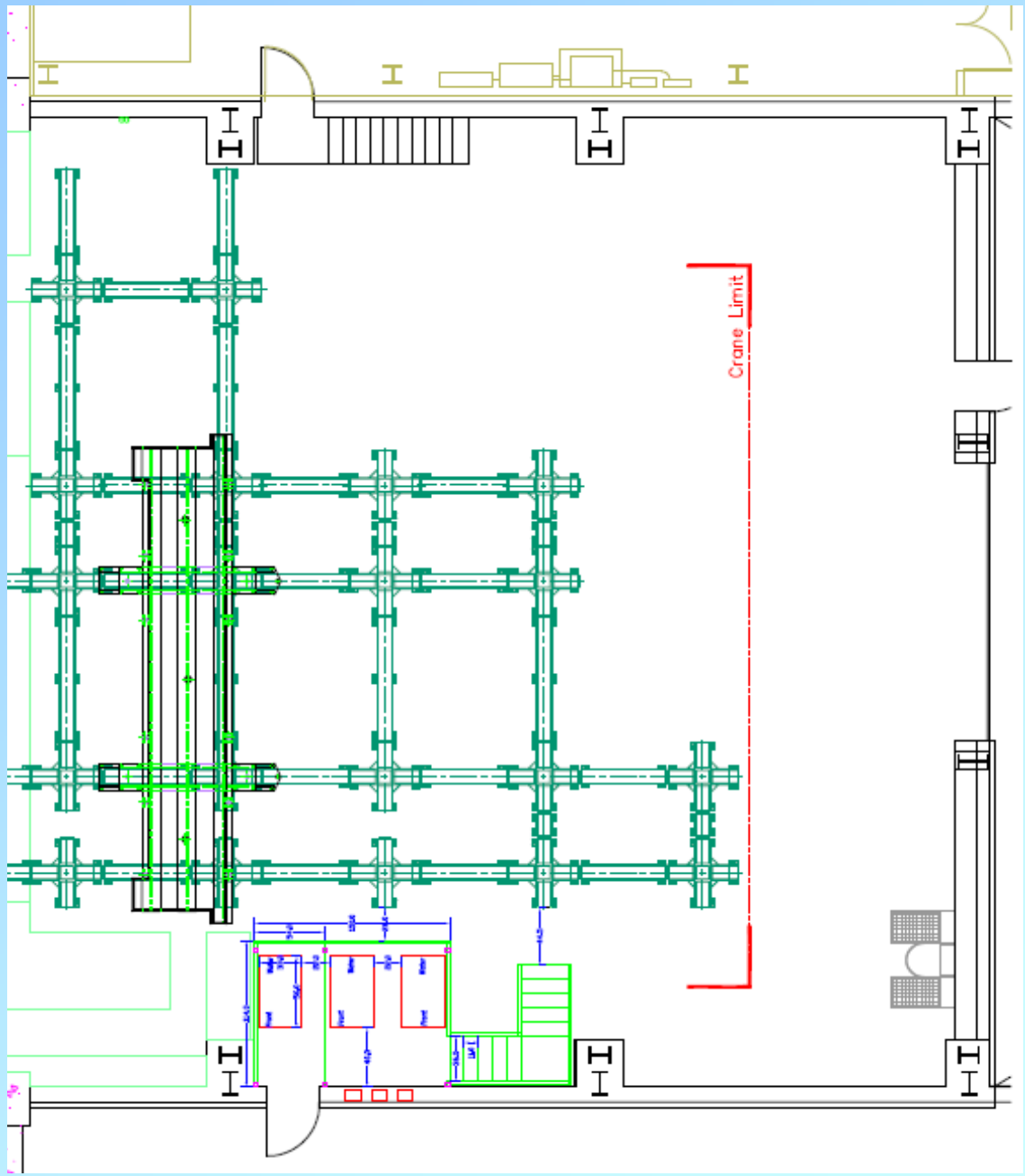
TECHNICAL SUPPORT 2010



Safety, Security, Etc.

1. **Annual PHENIX Safety review**

   Date TBD

2. **RPC1 Prototype & Borated Poly/Lead Absorber Review**

   Detector and absorber info sent to YMakdisi. Need installation plan

3. **Focal Prototype Review**

   Not enough info yet

4. **PHENIX Safety Items –**

   Scaffolding – Designed by PE trained in scaffold design
   Erected by qualified personnel trained in scaffold erection
   Inspected by qualified personnel trained in scaffold inspection

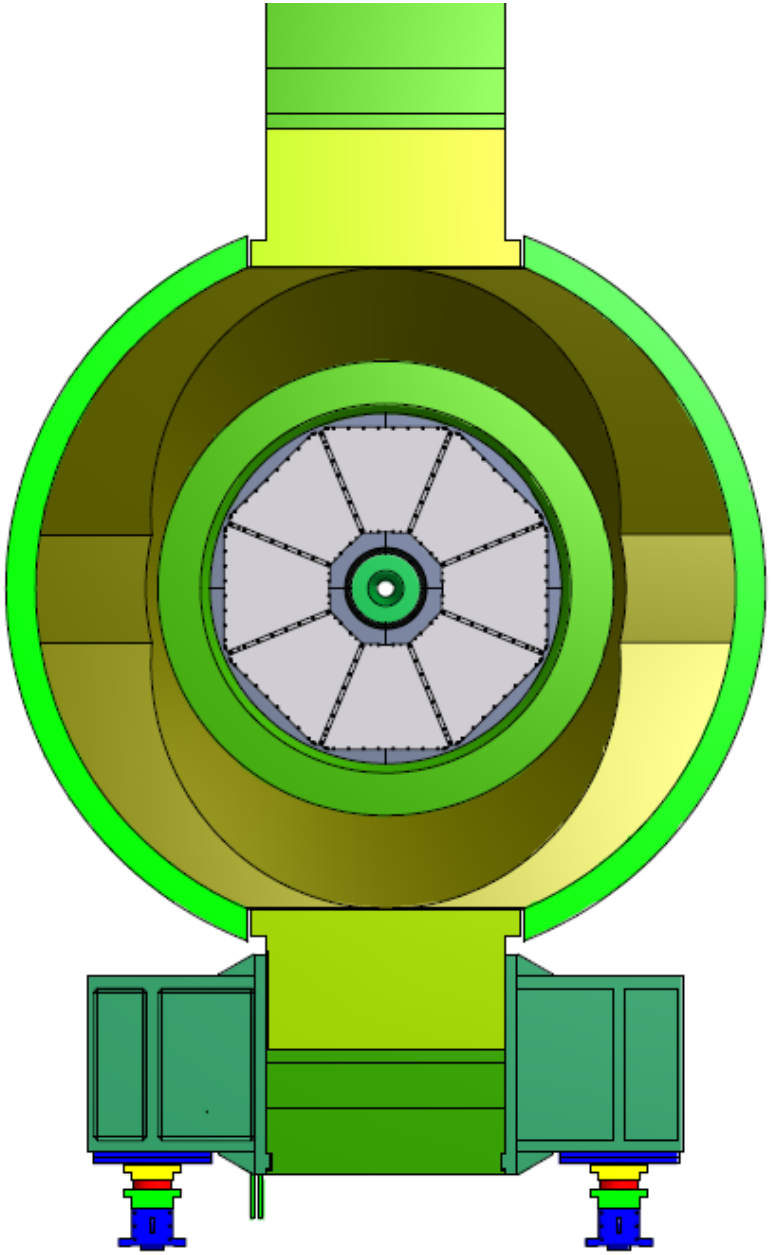
5. **Tier 1 Action items**

   - Band saw power cord pulled out of plub exposing wires
   - Illegal hard wired multi outlet extension coord in rack room
   - Extension coord in cable tray in mixing house
   - Illegal outlet box on extension cord in elect assy room
   - Exposed high voltage rack PRR 3.4
   - Missing arc flash labels and do not operate/ tagout downstream labels in rack room
   - Emergency lighting bulb is out IR north east, wall adjacent to third landing

Installation of final RPC1 detector

Anselm Vossen
UIUC

- At the moment we a considering an ‘unstaggered’ installation, i.e. all detector modules in one plane
- Advantage: We migh be able to install the RPCs on top of all absorber layers
- Disadvantage: limite acceptance



A : 1.00 inch. Distance from minimum clear plane of MuTr Station 1 (including FEM boxes, fittings, cables and hoses attached to Station 1 components. No interior cables, hoses, components of any kind in this area except BBC. Cable/hose services from inside to outside only with space split evenly for MuTr side services and BBC side services.

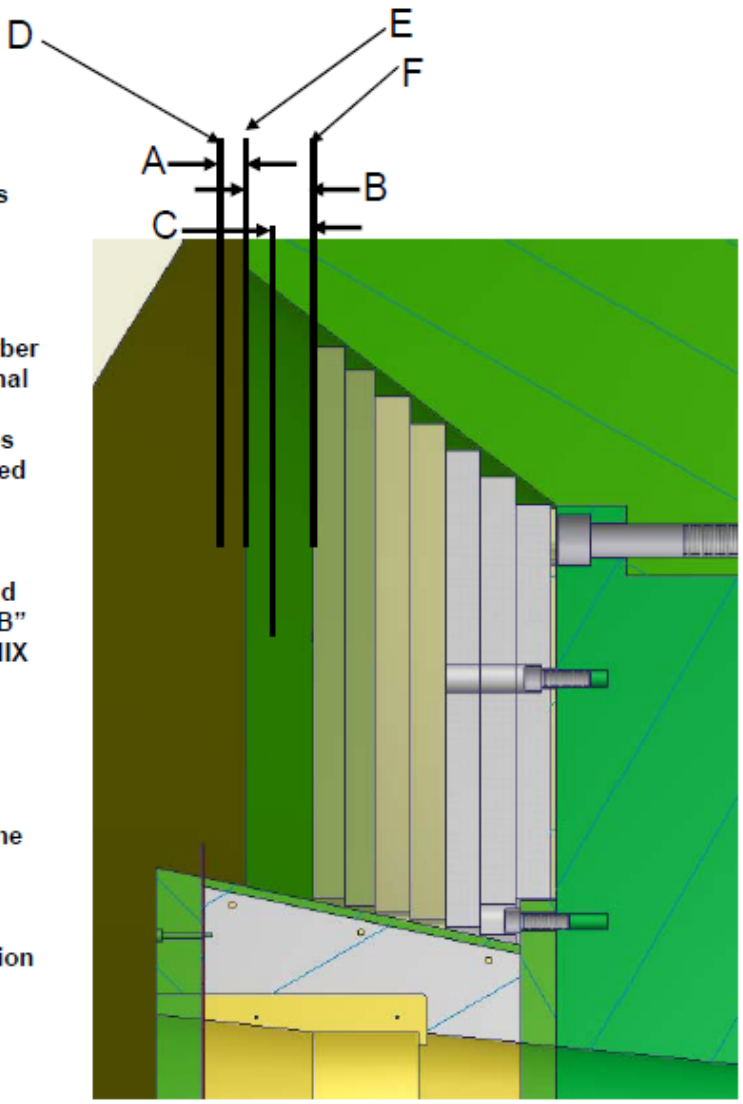
B: 3.46 inches. Maximum distance from face of absorber layer 7 to vertical flat ring outside of flower pot external cavity. All cavity components, mounting service connections etc must fit in this space, except services to outside which must hug the flat ring, and pie shaped space reserved for BBC cables is not to be intruded upon.

C: 2.25 inches: Maximum volume available for Borated Poly and lead absorbers and/or prototype detector. "B" space beyond "C" space is reserved for use by PHENIX engineering to accommodate installation

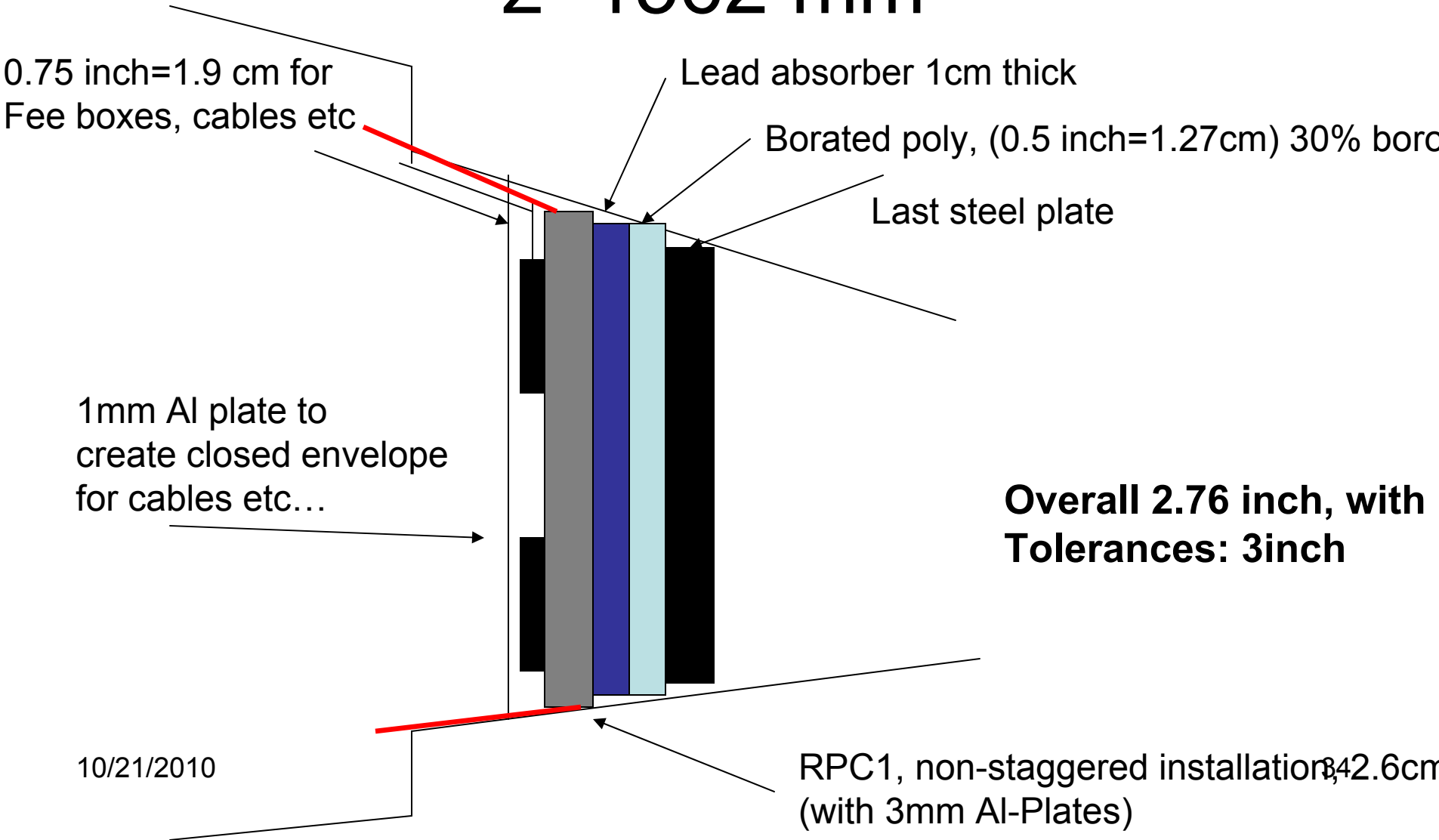
D: Ending plane of MuTr Station 1 including cables hoses and fittings.

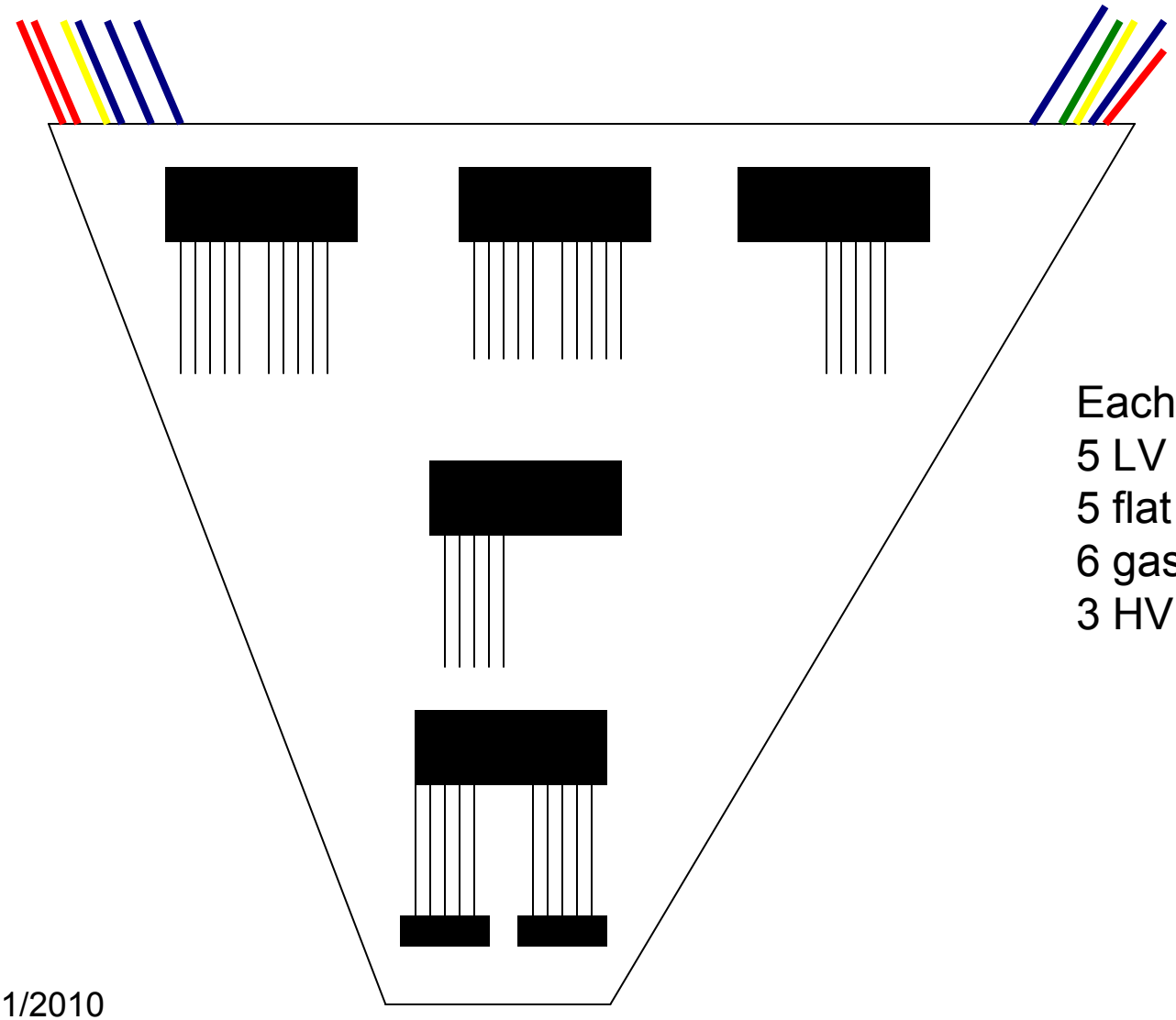
E: Flat vertical ring which defines vertical ending plane of flower pot external cavity. (Note: flower pot itself extends over 5 inches beyond "E".)

F: Vertical plane defining outermost horizontal position stainless steel absorbers.

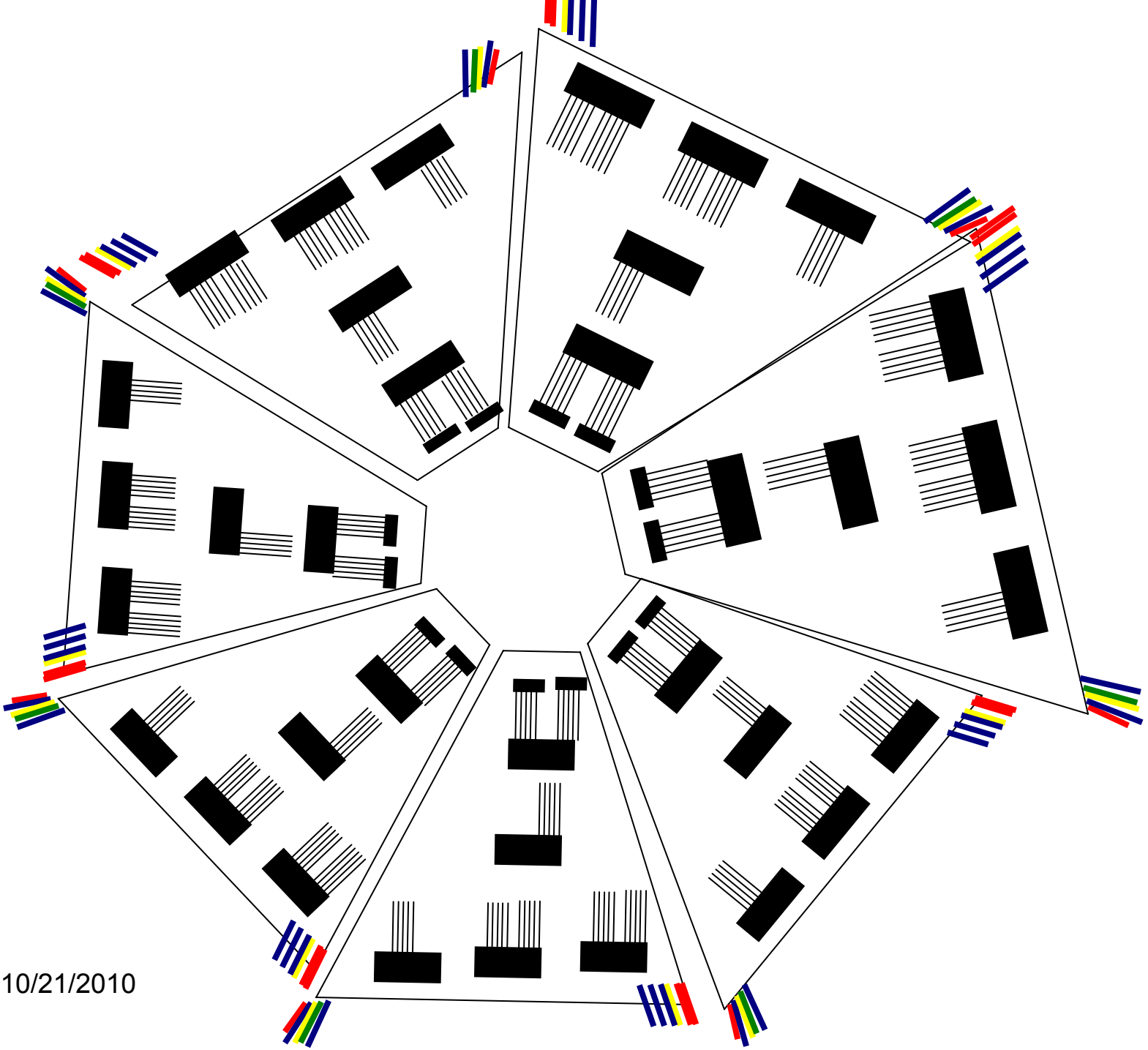


Installation of RPC1 without removal of Steel Absorber plates z=1562 mm





Each detector needs
5 LV cables
5 flat ribbon cables
6 gas lines
3 HV lines



Where To Find PHENIX Engineering Info

It's almost time to close everything up and seal it tight!

Links for the weekly planning meeting slides, archives of past meeting slides,long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm

Completed Tasks

PHENIX

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Prepare Installation Plan	Done	Done
Design Absorber Installation fixtures & tools	Done	PHENIX Engg & Design
Receive purchased parts	Done	PHENIX Techs
Fabricate PHENIX parts	Done	CS, PHENIX Techs
Receive and inspect CS fabricated parts	Done	PHENIX Techs
Prepare work permit for installation	Done	Currently at CAD Safety Approval
Pre-Assemble base components at PHENIX	Done	PHENIX Techs
VTX Installation Plan	Done	PHENIX Design & Engg
Installation Review (ESRC)	Done	Set up With Y. Makdisi
Specify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	Done	PHENIX Design & Engg
End of run 10 (Party)	Done	Done
Commissioning Tests (HV, Mixed gas and Freon only)	Done	Done
Choreograph removal of old beampipe and installation of new (final)	Done	Done
Beampipe Installation Review (Final)	Done	Done

Completed Tasks, Continued

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Task	Due By	NOTES
DAQ Tests	Done	PHENIX
Purge Gas From Detectors	Done	PHENIX, CAD remove LOTO
Install and align VTX rail attachment hardware to CM	Done	Using the HBD I-beam attachment hardware
Install and align VTX rails parallel to beam line	Done	Using the HBD I-beams
Remove BP Collar	Done	Done
Move MMS south	Done	PHENIX Techs
Prep EC for move to EC	Done	PHENIX Techs
Close North and South BP gate valves and lock closed for until new BP is installed	Done	CAD Vac Group
Open and disassemble wall	Done	Done
Remove EC ladder and fold platforms	Done	Carpenters & Riggers
Move EC to AH	Done	PHENIX Techs
Install cart	Done	PHENIX Techs
Move Collars to AH	Done	PHENIX Techs
Install decking	Done	PHENIX Techs
Remove/relocate shielding	Done	Riggers
Remove crystal palace & vapor barrier	Done	CAD
Install Manlift	Done	PHENIX Techs
Send beampipe to CERN for NEG Coating	Done	CAD Vacuum

Completed Tasks, Continued

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TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Remove RPC2 Prototype, support brackets, cabling & Piping	Done	In Progress PHENIX Techs, CAD Techs , Electrican
Remove MMS east vertical lampshade	Done	CAD Techs
4th of July Holiday & Floating Holiday	Done	
Remove HBD's and HBD cables Remove RXNP's and cables	Done	PHENIX Techs ASAP
Remove/relocate shielding	Done	Riggers
Remove crystal palace & vapor barrier	Done	CAD
Inspect Gap 5 south for legacy items/problems	Done	PHENIX Techs
Design BP installation and survey tools/fixtures	Done	
Receive BP transitions & spool back at BNL from SAES after NEG Coating	Done	
Remove BBC's	Done	PHENIX Techs ASAP
Remove wiring, walkovers, FCAL and scintillator hardware that would otherwise interfere with installation	Done	PHENIX Techs
4th of July Holiday	Done	Enjoy
Address legacy items/problems as convenient prior to shutdown start	Done	PHENIX Techs in progress

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Remove RPC prototype	Done	PHENIX/CAD Techs
Position MMS for Vacuum break	Done	PHENIX Techs
Break vacuum on north side of MMS	Done	CAD Vac Techs
Remove south bellows	Done	CAD Vac Techs
Gas Pad expansion completion (grouting)	Done	Tasks TBD
Remove MPC's	Done	PHENIX Techs ASAP
Install Temporary supports for old BP	Done	Supports TBD
Move MMS north, remove spool and south3-5 transition	Done	PHENIX Techs
Move the MMS south & Prep MMS for move to AH	Done	Begin MMS prep with shutdown start
Move CM south, remove north bellows	Done	PHENIX & CAD Vac Techs
Move old Be bp south into MMS and move CM north	Done	PHENIX Techs
Move MMS to shutdown park position	Done	PHENIX Techs
Remove old Be BP	Done	PHENIX Techs
VTX Survey Plan	Done	Consult w/ F. Karl
Install lighting & relocate sensors as necessary	Done	Electrician in progress

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Temporarily relocate, re-position or otherwise address interfering piping, cable trays	Done	PHENIX (w/ CAD Help?), Electrician
Pre-survey ½ octant reference points	Done	PHENIX Techs & Surveyors
Build/install access and work platforms for walk on top of MuID steel including stairs from MMS eyebrow	Done	Carpenters
Final cleaning and prep of gap 5 for grouting	Done	PHENIX Techs
Position lifting equipment in tunnel	Done	Riggers
Install and align base structures on east and west sides of gap 5	Done	PHENIC Techs & Riggers
Prepare for grouting	Done	PHENIC Techs & Masons
RHIC Summer Sunday Tour	Done	
Fabricate/procure Absorber Installation fixtures & tools	Done	PHENIX Techs
Fabricate Absorber Details	Done	Vendor & CS - RPC Group and PHENIX
Move CM south and east	Done	PHENIX Techs
Pre-installation orientation meeting with masons and riggers	Done	PHENIX Techs Masons & Riggers

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Move east and west base structures into south tunnel and assemble on east and west sides of pedestal respectively.	Done	Riggers & PHENIX techs
Install grout	Done	PHENIC Techs & Masons
Remove north 3 to 5 transition	Done	PHENIX Techs
Test Absorber installation fixture	Done	Hynan & Gaffney to witness
Receive bp back at BNL	Done	Mapes, Riggers to move from rec'g to CAD
Design fixtures, techniques and mockups for installation, alignment and survey	Done	PHENIX Design & Engg
Install upper suspension support hardware	Done	PHENIC Techs
CM Crane	Deleted	Currently on hold for re-evaluation
Assemble, test and burn-in 1/2 octants	Done	In Progress @ RPC Factory
Prepare north 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	Done	PHENIX Techs & CAD Vacuum Techs
Final acceptance and inspection bp and sections	Done	Done
Fabricate BP installation and survey tools/fixtures	Done	Done

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Install North Absorber	Done	Done
Drill and tap ½ octant and rotating piston mounting points	Done	PHENIX Techs
Install pitch control rails on pedestal and gap 5 east & west inner walls	Done	PHENIC Techs
Cooling system procurement	Done	Pisani Coordinate with CAD Cooling Water, Electricain
Weld Absorber support stubs into flower pot exterior cavity	Done	CS Field welding; coordinate with Al Farland
Install north 3 to 5 transition in MMN	Done	PHENIX Techs
Final survey	Done	Surveyors
Preassemble Absorber Segments	Done	
Install South Absorber	Done	
Install new Be pipe in CM on temp supports	Done	PHENIX Techs

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Install ½ octants, 2 at a time in accordance with work plan/work permit		
Transport ½ octants 2 at a time from RPC factory to south tunnel on angled transport carts		
Transfer ½ octants from angled transport carts one at a time to temporary free standing and re-orienting roller fixture (fore and aft wheels and axel)		
Lift (and re-orient if appropriate) ½ octant and install into base structure, previously installed ½ octant or upper suspension hardawre as appropriate per work plan		
Pre-align each ½ octant as installed		
Perform electrical integrity tests before proceeding to next pair of ½ octants		
After all ½ octants are in place and tested, join east and west halves of full south station 3 detector and align to survey markers	Done	Riggers & PHENIX Techs

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

Task	Due By	NOTES
Beampipe & VTX Installation Work Permits	Done	D. Lynch, CAD Safety Approval
BigWheel Fabrication & Procurement	Done	PHENIX, CS
Receive, inspect, test, rework and qualify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	Done	PHENIX Design & Engg
Fabricate fixtures, techniques and mockups for installation, alignment and survey	Done	CS, PHENIX Techs
Assemblies,Mock installations/alignments, bench tests	Done	PHENIX Techs
Receive & inspect components (installation, support, alignment & Survey)	Done	PHENIX Techs
Move CM back to beamline & connect new Be BP to 1-5/8 transition and bellows and north 3-5 transition	Done	PHENIX TechsPHENIX Techs
Move CM to run position	Done	PHENIX Techs
RPC3 North unfinished business	Done	Electronics and cabling, grounding issues, environmental controls
MuTrigger FEE unfinished business	Done	MMS cable trays,

PHENIX

TECHNICAL SUPPORT 2010

Completed Tasks

General:

- RPC3N commissioning tests
- Generic start of shutdown tasks (collars, wall, EC prep, EC to AH, DAQ tests, etc.)
- DC (East & West), PC1 (East and West), MuTr (north and South), Mu Trigger North and south maintenance and repair support
- Remove RPC2 & 3 Prototypes, support brackets, cables and piping
- Remove south vertical lampshade
- Gas Pad Expansion
- Summer Sunday Prep
- Move major carriages to wide open positions

Completed Tasks

Absorber Related:

- Absorber Installation Plan
- Fabricated and Procured Absorber parts and installation tools
- Absorber work permit
- Absorber lifting fixture, design, analysis, LSC approval, Load test
- North Absorber installed
- South Absorber supports installed & Flowerpot area prepped, ½ of absorbers are installed

Beam Pipe Related:

- Design, fabrication, procurement, acceptance beam pipe components and supports
- Send beam pipes to CERN/SAES Getter for NEG coat
- Remove MPC's and BBC's
- Remove existing beampipe
- North 3"-5" transition installed

Completed Tasks

TECHNICAL SUPPORT 2010

RPC3S Related:

- Remove shielding
- Remove Crystal Palace
- Remove wiring, walkovers, FCAL and scintillator hardware
- Remove all pipes, cables, trays and pipe suppports from gap 5, provide minimal life support gases to detectors, special provisions for detector maintenance requirements
- Install new tunnel lighting
- Build access platforms above MuID steel
- Clean gap 5, install, level and align RPC3S bases
- Presurvey, drill and tap alignment and orientation points for ½ octants
- Grout bases into place
- Install west and pedestal pitch control
- Install upper alignment supports
- Install east pitch control
- All ½ octants installed

Completed Tasks

VTX Related:

- Design and analyze assembly plan
- Design and analyze survey plan
- Design and analyze installation plan
- Design and analyze cooling plan
- Design VTX installation and support structures and tools, including survey tools
- Order chillers
- Redesign Bigwheels for optimized cooling
- Fabricate VTX assembly, installation, survey components and tools
- Install VTX support rails and attachment hardware